TRICHOPTERA

Caddisflies

The name Trichoptera, derived from the Greek words "*trichos*" meaning hair and "*ptera*" meaning wings, refers to the long, silky hairs that cover most of the body and wings.

Classification	Life History & Ecology	Distribution
Physical Features	Economic Importance	
Major Families	Fact File	Hot Links

Life History & Ecology:

The order Trichoptera (caddisflies) is another likely descendant of the Mecopteran lineage. Adults are mostly nocturnal, weak-flying insects that are often attracted to lights. During the day, they hide in cool, moist environments such as the vegetation along river banks. The body and wings are clothed with long silky hairs (setae) -- a distinctive characteristic of the order. In flight, the hind wings are coupled to the front wings by specially curved hairs. At rest the wings are held tent-like over the abdomen. Many caddisflies have reduced or vestigal mouthparts. Few species have actually been observed feeding, and most adults are relatively short-lived.

All caddisfly larvae live in aquatic environments; they may be herbivores, scavengers, or predators. In most cases, the predatory species are free-living or spin silken structures in the water (webs or tunnels) to entrap prey. The scavengers and herbivores live within protective "cases" which they build from their own silk and stones, twigs, leaf fragments, or other natural materials. Case design and construction is distinctive for each family or genus of caddisfly. The case is usually portable, dragged around like a snail shell as the insect moves, and held in place by a pair of hooked prolegs at the tip of the abdomen. Most species have thread-like abdominal gills and get oxygen from water that circulates inside the case. All larval growth and development (including pupation) occurs within the case.

Distribution:

Common worldwide. Larvae are aquatic and may be abundant in some cool, fresh water habitats. Adults are less conspicuous, usually nocturnal.

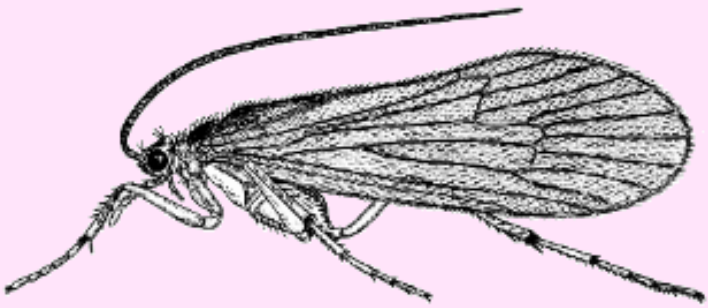
	North America	Worldwide
Number of Families	**18**	**43**
Number of Species	**1,261**	**>7,000**

Classification:

Holometabola
complete development (egg, larva, pupa, adult)

Physical Features:

Immatures

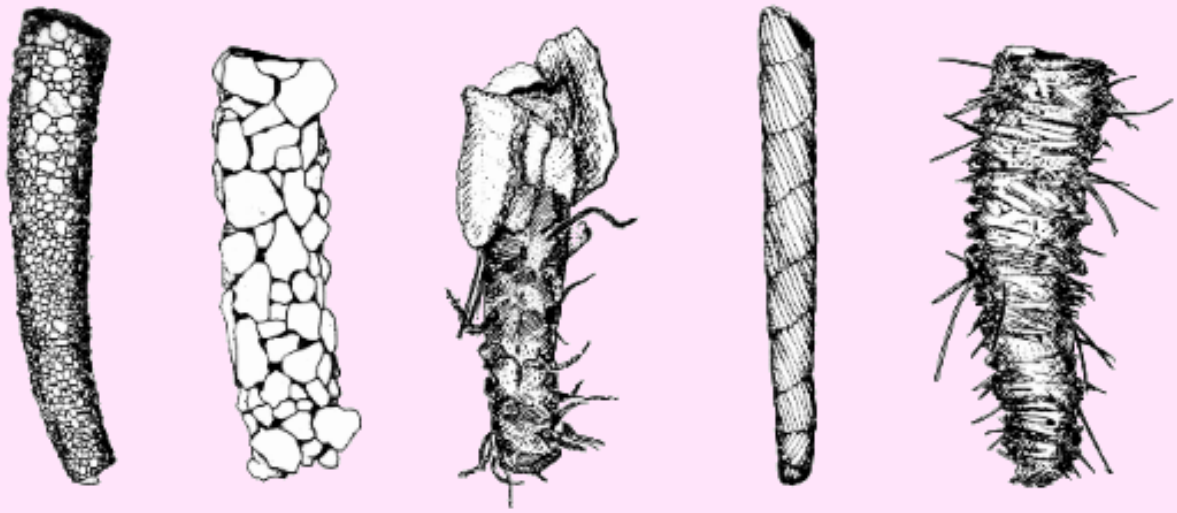


Adults

1. Eruciform (caterpillar-like) body; abdomen usually enclosed in a case made of stones, leaves, twigs, or other natural materials.
2. Head capsule well-developed with chewing mouthparts
3. Thread-like abdominal gills usually present in case-makers
4. One pair of hooked prolegs often present at tip of abdomen

1. Filiform antennae
2. Mouthparts reduced or vestigal
3. Two pairs of wings clothed with long hairs
4. Wings held tent-like over the abdomen

Examples of Caddisfly Cases



Economic Importance:

Caddisfly larvae may serve as food for fish and other aquatic vertebrates. Fishermen often gather them for use as bait for trout and other game fish. Although a few species have been recorded as pests in rice paddies, most caddisflies have very little economic importance.

Major Families:

- **Hydropsychidae** -- Most larvae are filter feeders. They build silk nets in swift water to snare food particles. A few species are predatory.

- **Hydroptilidae** -- Larvae make purse-like cases of silk, often with small stones attached.
- **Limnephilidae** -- Larvae build tubular cases from a variety of natural materials.
- **Phryganeidae** -- Larvae construct tubular cases with plant fragments arranged in a spiral orientation.

Fact File:

- Many species of Trichoptera are very similar in appearance, both as larvae and as adults. It is often easier to identify a species by the structure of its case than by the features of its body.
- While still in their pupal case, caddisfly adults have sharp mandibles used for cutting through the pupal case. Once they emerge, their mandibles degenerate and become nonfunctional. From this time on they do not feed (or injest food only in liquid form).

Hot Links and Illustrations:

- **Gordon Ramel's Trichoptera Page**
- **Ecowatch Trichoptera Page**
- **Tree of Life Web Project - Trichoptera**
- **Discover Life - Trichoptera**

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